

CLAIMS

1. A deep drawn metal stamping in the configuration of a bearing mounting sleeve, said sleeve comprising a radially extending flange at one end, a hollow cylindrical sleeve body portion integral with the flange projecting axially therefrom and a radially inwardly extending portion integral with the body portion at an end opposite the radial flange, and at least one bearing locating shoulder formed in the body portion and facing toward the flange end, said shoulder extending radially inwardly from the inner wall of the body portion and around at least a substantial part of said inner wall so as to engage and axially locate one end of a bearing mounted within the sleeve.
2. A deep drawn metal stamping as set forth in claim 1 wherein the body portion of the sleeve is of reduced diameter cross section on the side of the shoulder opposite the flanged end of the sleeve, said reduced diameter portion having a second shoulder extending radially inwardly from the inner wall and facing toward the flanged end of the sleeve, the second shoulder extending around at least a substantial part of said reduced portion inner wall and serving to engage and axially locate a second and diametrically smaller bearing mounted within the sleeve.
3. A deep drawn metal stamping as set forth in claim 2 wherein said second shoulder is formed at the end of the reduced diameter section and includes a plurality of small circumaxially spaced angularly inwardly projecting fingers which engage and axially load the associated bearing.

4. A deep drawn metal stamping as set forth in claim 2 wherein at least one of said first and second shoulders is provided with a small spring biasing member to engage and axially load the associated bearing.
5. A deep drawn metal stamping as set forth in claim 4 wherein both of said first and second shoulders are provided with small spacing biasing members to axially load their associated bearings.
6. A deep drawn metal stamping as set forth in claim 1 wherein said radial flange at one end of said sleeve has a plurality of small circumaxially spaced tabs which extend angularly from the plane of the flange in radially spaced relationship with the body portion of the sleeve and which engage a bearing housing or the like to locate the sleeve in a radial plane.
7. A deep drawn metal stamping as set forth in claim 1 wherein a short end portion of the sleeve axially opposite the flange is diametrically reduced to provide a mounting surface engageable with a complementary cylindrical opening in a bearing housing or the like to locate the sleeve both axially and radially.
8. A deep drawn metal stamping as set forth in claim 1 wherein the flange at one end of the sleeve serves as a backplate in a D.C. electric motor and mounts at least one magnet forming a part of the motor.
9. A deep drawn metal stamping as set forth in claim 8 wherein an outer radial portion of the flange is formed to provide an annular D.C. motor backplate with an axial extending surface for mounting at least one magnet.

10. A deep drawn metal stamping as set forth in claim 1 wherein a series of circumaxially spaced axially elongated crush ribs are formed adjacent to the shoulder on the side thereof facing the flange, the ribs projecting slightly radially inwardly from the inner wall of said body portion of the shell and engaging the outer wall of an bearing associated in a press fit whereby to radially load the same.
11. A deep drawn metal stamping as set forth in claim 2 wherein first and second series of circumaxially spaced axially elongated crush ribs are formed respectively adjacent to the first and second shoulders on the sides thereof facing the flange, the ribs projecting slightly radially inwardly from the inner wall of said body portion of the shell and engaging the outer walls of bearings associated respectively with the shoulders in a press fit whereby to radially load the same.
12. A method for making a deep drawn metal stamping in the form of a bearing mounting sleeve; the method comprising providing a flat sheet metal blank, forming a flanged cup from the blank in the approximate configuration of the bearing sleeve progressively in a series of drawing operations, and forming a shoulder facing the flange in the course of at least one of said drawing operations, the shoulder projecting radially inwardly from the inner wall of the cup and extending around a substantial portion of the cup wall so as to engage and axially locate a bearing mounted within the cup.

13. A method for making a deep drawn metal stamping in the form of a bearing mounting sleeve wherein first and second axially spaced shoulders are formed during the cup drawing operation, each shoulder being adapted to engage and axially locate a bearing disposed within the sleeve.
14. A method for making a deep drawn metal stamping as set forth in claim 13 wherein said cup has first and second sections of different diameters, said shoulders being associated respectively with said two sections.
15. A method for making a deep drawn metal stamping as set forth in claim 12 wherein said drawing steps are followed by a piercing step which provides a central opening and a plurality of small spring fingers in an end wall of the sleeve opposite the flange, the spring fingers being angularly inclined toward the flanged end of the sleeve
16. A method for making a deep drawn metal stamping as set forth in claim 14 wherein an additional forming step provides first and second series of inwardly projecting axial ribs respectively adjacent to the first and second shoulders.
17. A method for making a deep drawn metal stamping as set forth in claim 12 wherein successive clipping and bending steps form and bend a plurality of small locating tabs on the flange in radially spaced relationship with the sleeve body portion.

18. A method for making a deep drawn metal stamping as set forth in claim 12 wherein a small hollow reduced diameter locating element is formed during said drawing steps and projects from the end of the sleeve opposite the flange.